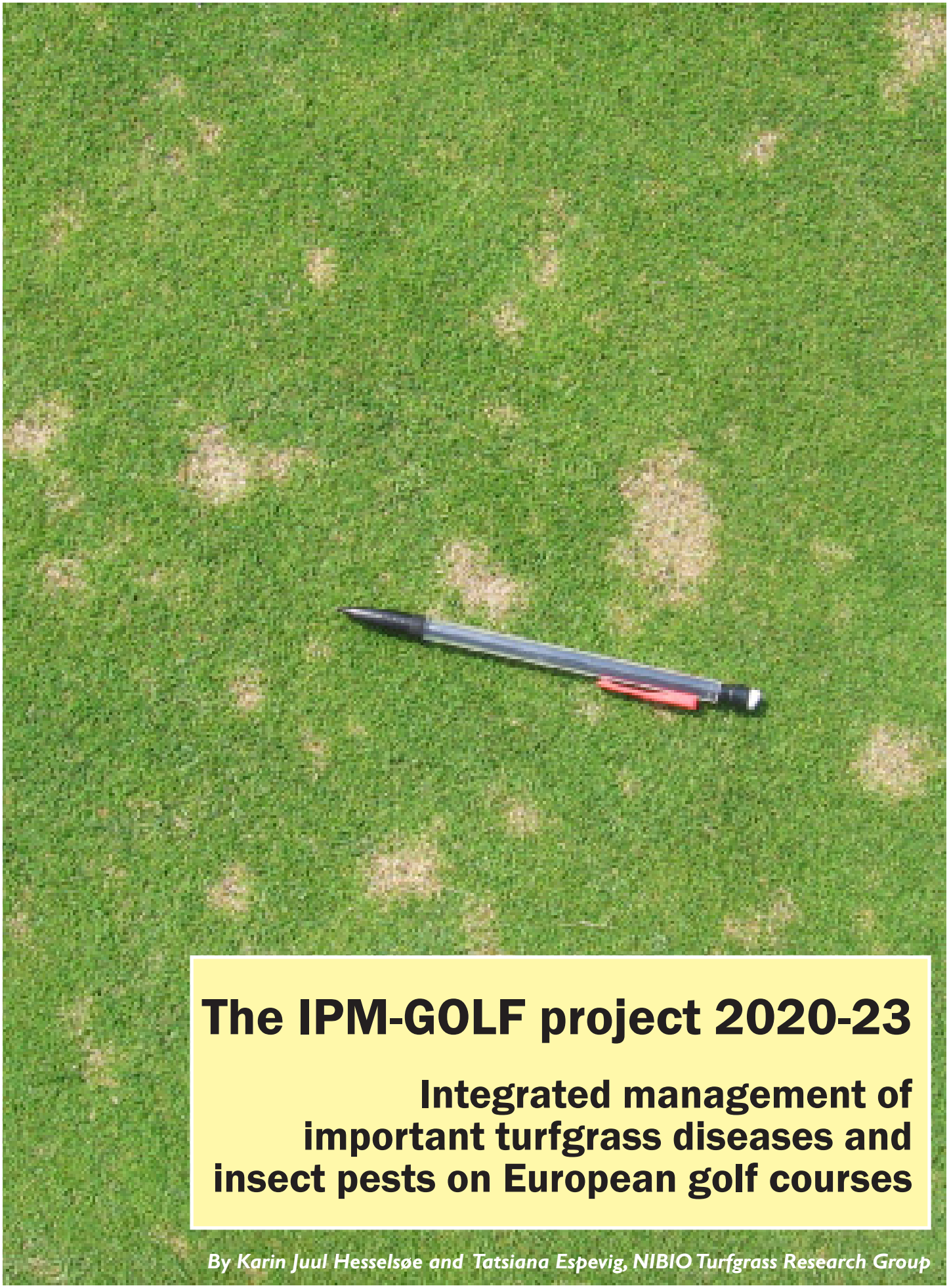

The IPM-GOLF project 2020-23

Integrated management of important turfgrass diseases and insect pests on European golf courses

By Karin Juul Hesselsøe and Tatsiana Espevig, NIBIO Turfgrass Research Group

Popular Scientific Articles - STERF, April 2020

Integrated management of important turfgrass diseases and insect pests on European golf courses – the IPM project 2020-23

Photo 1: *UVC unit to prevent turfgras diseases. Photo: Wolfgang Praemassing*

From spring 2020 and the following three and a half years NIBIO Turfgrass Group will implement a project on IPM with focus on important turfgrass diseases and insect pests. This project is funded by STERF and R&A, but also Netherlands Golf Federation, German Golf Association, Botaniska Analysgruppen in Sweden and the Danish Environmental Protection Agency are co-funding. The project has a broad European perspective comprising researchers from UK, Germany, Portugal, Russia, Denmark, Sweden, Finland and Norway.

The research project investigates cultural practices and new technologies to manage important diseases namely microdochium patch and dollar spot with no or strongly reduced pesticide inputs. The control of insect pests namely chafer grubs and leatherjackets will also be investigated in the project.

The results will be presented on ETSC 2022, annual BTME and published in Scandinavian and international greenkeeper magazines.

What is IPM?

Integrated Pest Management (IPM) refers to the integration of all available techniques for control of diseases, harmful insects and weeds that discourage the development of pest populations and keep the use of pesticides to levels that are economically justified and environmentally sustainable. This is the definition of IPM, which means that pesticides can be used only when all other management practices and alternatives have been considered. The countries involved in this project are through the EU directive on sustainable use of pesticides committed to implement strategies for integrated pesticide management.

IPM has for many years been one of STERF's highest research priorities with a focus on: turfgrass species and cultivars for disease resistance and weed competition, knowledge on the biology of pest insects and safe use of pesticides.

This IPM project will create new knowledge on the challenges of diseases and insect pests comprising trials and demonstrations on research premises and golf courses in the countries involved.

Photo 2: *Dollar spot. Photo: Tatsiana Espevig*

Microdochium patch and dollar spot

To control these two most important turfgrass diseases on golf courses the IPM-project investigates the effect of cultural approaches such as rolling, UV-C radiation and alternative products against microdochium patch and dollar spot. Rolling has been shown to reduce dollar spot significantly, and newly published research has shown that rolling may reduce microdochium patch on annual bluegrass greens. The IPM-project will investigate the use of rolling on fescue/bent greens at Copenhagen Golf Club in Denmark. UV-radiation is a new technology to prevent diseases. It has been documented to have germicidal effects by causing damage to DNA in cell nuclei, thus available data show a strong effect of UV-C on the mycelial growth of turf diseases. The IPM-project will investigate the use of artificial produced UV-radiation to prevent both dollar spot and microdochium patch at Osnabrück Golf Club in Germany (Photo 1).

In collaboration with the suppliers the project will investigate the effect of alternative products against microdochium patch and dollar spot at field trials on the research premises of NIBIO Landvik in Norway and of STRI in Bingley, UK.

As dollar spot is still a new disease in the Nordic countries (Photo 2) the IPM-project will also focus on causal species for dollar spot and tests of seeds as a source for dollar spot distribution in Europe. In collaboration with researchers and companies from Russia and Finland the IPM-project investigates immunoassay for rapid identification of the fungi that causes microdochium patch and dollar spot in plant tissue.

Chafer grubs and leather jacktes

As most registered pesticides against these insect pests have been banned in the EU, the need for alternatives to prevent attacks of june beetles (Photo 3) and crane flies are growing. The IPM-project comprises a literature review of the management and potential innovation options of monitoring, warning and control of chafer grubs and leatherjackets on golf courses.

Collaborators and match funding

This project is a concerted effort by researchers, greenkeepers and suppliers representing alternative products and technology in the Nordic countries, Germany, Netherlands and UK.

Dissemination of results

The project will be disseminated through articles in national and international greenkeepers magazines and videos on STERF webpage and other media channels.

New IPM-fact sheets will be produced to provide greenkeepers and golf course managers with new knowledge for sustainable decision making.

Photo 3: *The IPM -project also focus on june beetles. Photo: Preben Nielsen*